

## ABSTRACT OF THE DISCLOSURE

A semiconductor optical amplification system that uses a single-mode fiber angle-coupled to a semiconductor wave-guide medium with optical gain. This design is particularly simple and relevant to optical fiber systems, but it may be generalized to include other  
5 implementations as well, in which other spatial mode filters are employed. A chip design is employed in which lowest order mode has a size greater than about 5 micrometers ( $\mu\text{m}$ ). Thus, much smaller facet angles can be employed while still avoiding self-oscillation. More specifically, according to some aspects of the invention, facet angles of less than 4 to 5 degrees are utilized.

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